



## UNIVERSITI TEKNOLOGI MARA

### CSC684: GAME PROGRAMMING

<b>Course Name (English)</b>	GAME PROGRAMMING <b>APPROVED</b>
<b>Course Code</b>	CSC684
<b>MQF Credit</b>	3
<b>Course Description</b>	This course aims to teach students to design, develop and implement computer games that involve real-time, event-driven and multimedia programming techniques. Topics in this course include graphics, game engines, motion control, narrative in games, game interfaces, and artificial intelligence. At the end of this course, students will be able to develop a computer game applying proven game design and software engineering principles.
<b>Transferable Skills</b>	programming skills and team working in game development
<b>Teaching Methodologies</b>	Lectures, Lab Work, Discussion
<b>CLO</b>	CLO1 Formulate the solution for game development CLO2 Demonstrate the scientific approach for resolving game development issues through programming CLO3 Organize the overall game development task
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. GAME DESIGN</b> 1.1) Game Design 1.2) Game Writing and Interactive Storytelling	
<b>2. GAME PROGRAMMING: LANGUAGE AND ARCHITECTURE</b> 2.1) Teams and Processes 2.2) C++, Java and Scripting Language 2.3) Programming Fundamentals 2.4) Game Architecture 2.5) Memory and I/O Systems 2.6) Debugging Games	
<b>3. MATHEMATICS, COLLISION DETECTION AND PHYSICS</b> 3.1) Mathematical Concepts 3.2) Collision Detection and Resolution 3.3) Real-time Game Physics	
<b>4. AI FOR GAME</b> 4.1) Artificial Intelligence: Agents, Architecture and Techniques 4.2) Artificial Intelligence: Pathfinding	
<b>5. CONTENT PRODUCTION</b> 5.1) Graphics 5.2) Character Animation Visual Design 5.3) 3D Modeling 5.4) 3D Environments 5.5) 2D Textures and Texture Mapping 5.6) Special Effects 5.7) Lighting 5.8) Animation 5.9) Cinematography 5.10) Audio Design and Production	

**6. GAME PRODUCTION**

6.1) Game Production and Project Management

6.2) Game Industry Roles

6.3) Marketing

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment 1	20%	CLO2
	Assignment	Assignment 2	20%	CLO2
	Group Project	Group project	25%	CLO3
	Online Quiz	online quiz	5%	CLO1
	Test	Test 1	15%	CLO1
	Test	Test 2	15%	CLO1

Reading List	Recommended Text	• Brian Beuken 2018, <i>The Fundamentals of C/C++ Game Development</i> , A K PETERS [ISBN: 9781498788748]
	Reference Book Resources	<ul style="list-style-type: none"> <li>• John P. Doran, Matt Casanova 2017, <i>Game Development Patterns and Best Practices</i>, 12, Packt Publishing Ltd. Copyright. Birmingham [ISBN: 978-178712-78]</li> <li>• Lee Stemkoski 2018, <i>Java Game Development with LibGDX: From Beginner to Professional</i>, 2 Ed., 10, Apress. Copyright. New York, USA</li> <li>• Jonathon Manning, Paris Buttfield-Addison 2018, <i>iOS Swift Game Development Cookbook: Simple Solutions for Game Development</i>, 3 Ed., 11 [ISBN: 9781491999080]</li> <li>• Sanjay Madhav 2018, <i>Game Programming in C++: Creating 3D Games: Creating 3D Games (Game Design)</i>, 1 Ed., Addison Wesley Boston, USA [ISBN: 97801345972]</li> <li>• Jeremy Gibson Bond 2017, <i>Introduction to Game Design, Prototyping, and Development</i>, Game Design [ISBN: 0134659864]</li> </ul>
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	